University of Agronomic Sciences and Veterinary Medicine of Bucharest
Faculty of Horticulture

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Phenology of some new peach and nectarine cultivars introduced in București area

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Introduction

Peach is one of the most important fruit species, due to its characteristics taste of the fruits and the special biological particularities of the trees "(Cociu et al.,1981).

The trees bear fruit advantageously from **the third year** after planting, and the fruits are eaten **fresh** or used as **raw material** for processing, from which a large number of finished products can be obtained (Cepoiu and Manolache, 2006).

The qualitative and technological properties of peaches are: the **fineness of the pulp**, the specific **aroma**, rich in **sugar**, **acidity** and other **substances beneficial** to the body.

The main chemical components of peaches

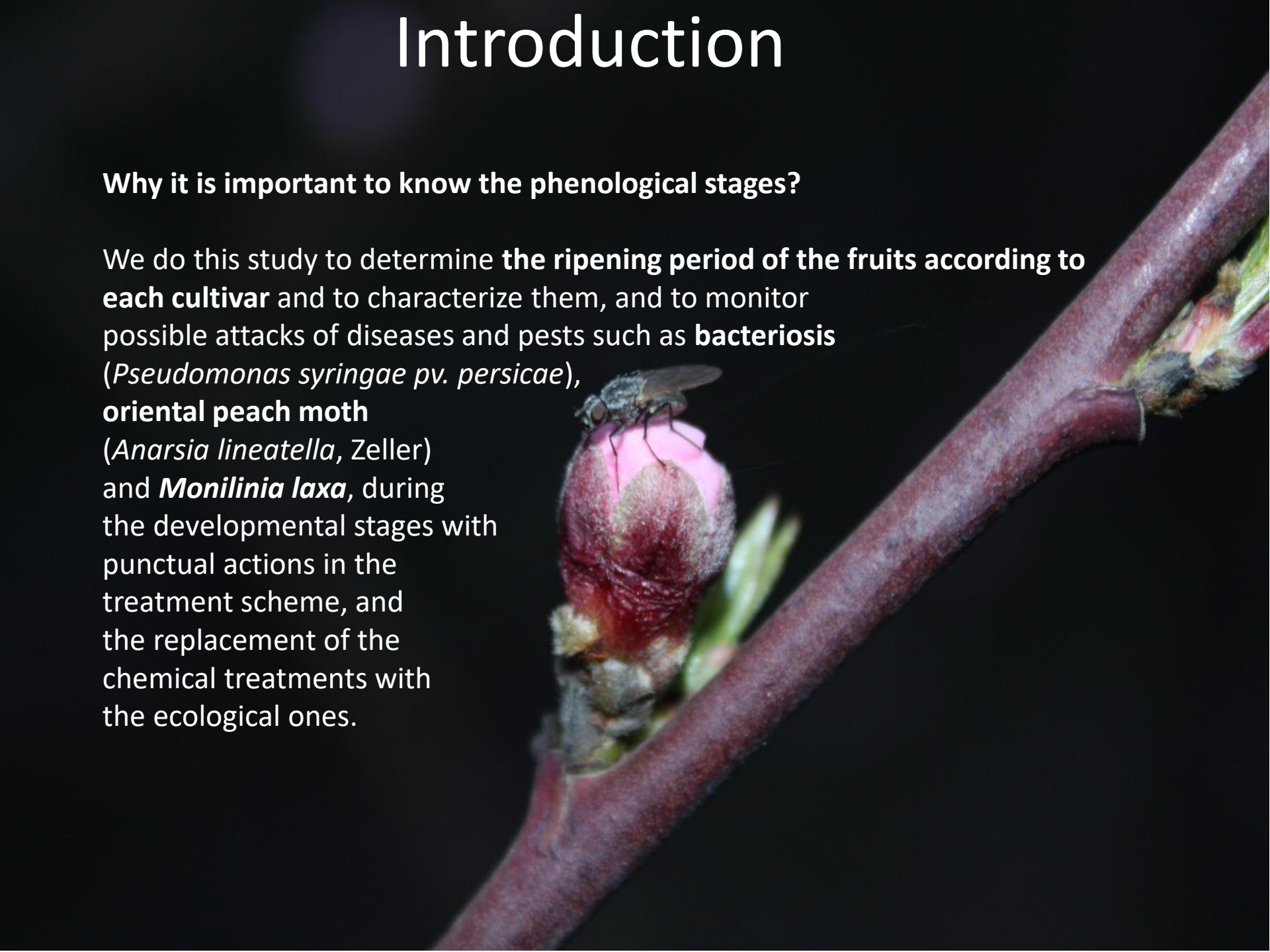
Substance	Content	Substance	Content
Total carbohydrates	8,5 – 12,6 g %	Phosphorus	23 mg %
Total acidity	0,40 – 0,89 g %	Calcium	7,8 mg %
Pectic substances	0,35 – 0,80 g %	Vitamin A	0,44 mg %
Protein substances	0,50 – 1,13 g %	C vitamin	9,50 mg %
Total cellulose	0,50 – 0,95 g %	Vitamin PP	0,85 mg %
Potassium	205 mg %	Vitamin E	0,60 mg %

Source: Tănăsescu (2005)

Introduction

Why it is important to know the phenological stages?

We do this study to determine **the ripening period of the fruits according to each cultivar** and to characterize them, and to monitor possible attacks of diseases and pests such as **bacteriosis** (*Pseudomonas syringae pv. persicae*), **oriental peach moth** (*Anarsia lineatella*, Zeller) and ***Monilinia laxa***, during the developmental stages with punctual actions in the treatment scheme, and the replacement of the chemical treatments with the ecological ones.

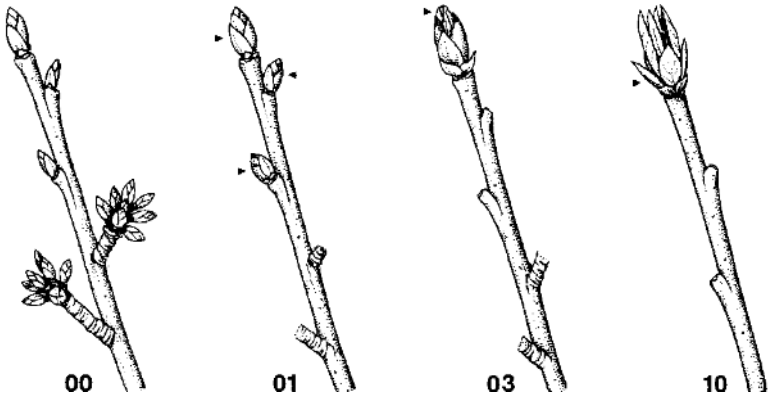


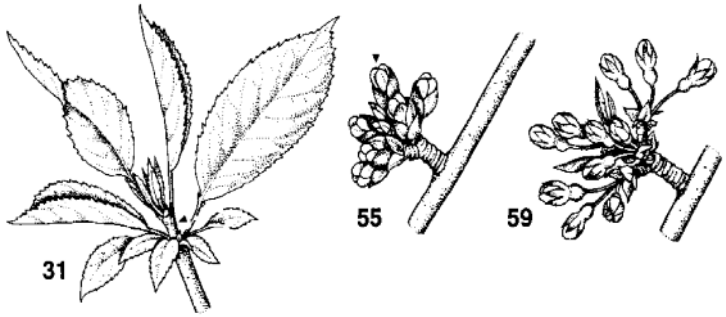
Materials and Methods

The extended BBCH-scale

edited by Uwe Meier, Julius Kühn-Institut (JKI)
Quedlinburg 2018

The extended BBCH-scale is a system for a uniform coding of phenologically similar growth stages of all mono- and dicotyledonous plant species





51- Inflorescence buds swelling: buds closed, light brown Scalesvisible

55 - Single flower buds visible (still closed) borne on short stalks,green scales slightly open

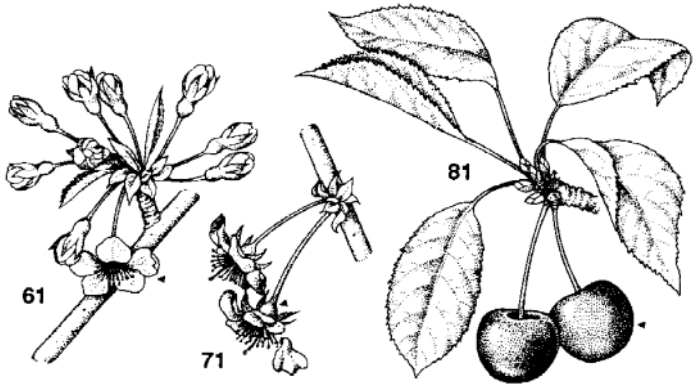
57- Sepals open: petal tips visible; single flowers with white or pink petals (still closed)

72 - Green ovary surrounded by dying sepal crown, sepals beginning to fall

75 - Fruit about half final size

85 - Colouring advanced

87- Fruit ripe for picking



Materials and Methods

Biological material

New peach and nectarine cultivars

➢16 new nectarin cultivars on M29C, GF677 and Saint Julien A rootstocks

❖2 rows (2017 planted)– one on Trident canopy (4 x 2 m) and other on Vertical Axe canopy (4 x 1.5 m)

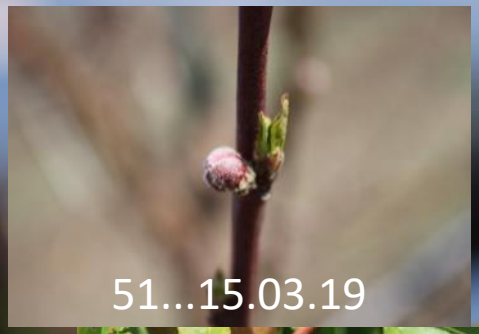
➢15 new peach cultivars on GF677, Mirobolan 29C and Adesoto rootstocks

❖ 2 rows (2017 planted) – one on Trident canopy (4 x 2 m) and other on Vertical Axe canopy (4 x 1.5 m)

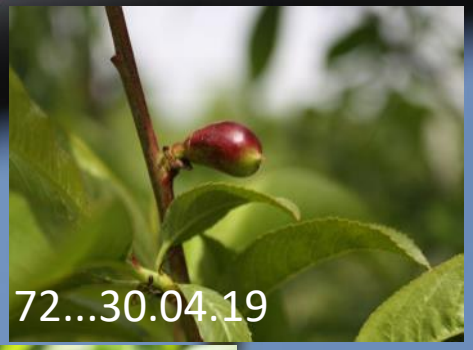
Materials and Methods

Method - photos taken at each stage of growth and coded according to the BBCH scale

Eg: BIG TOP/GF 677


51...15.03.19

65...01.04.19


72...30.04.19

75...03.06.19

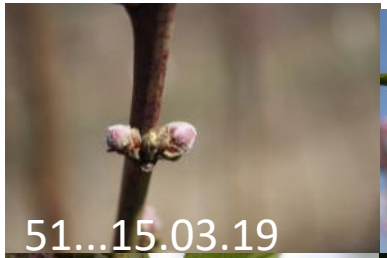
81...25.06.19

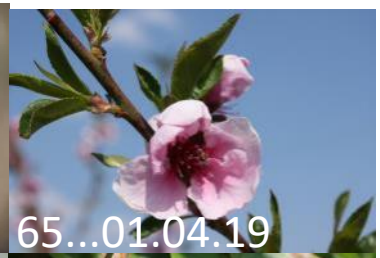
85...25.06.19

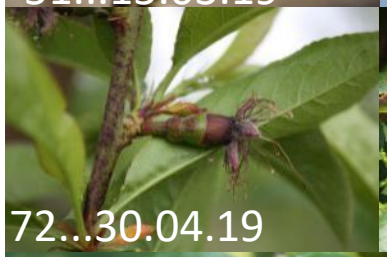
Results and discussions

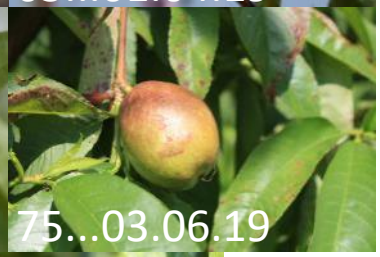
One nectarine cultivar on two different canopies and different rootstocks

Trident
Honey Royal / Myrobalan 29C

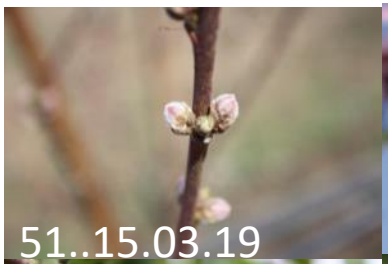


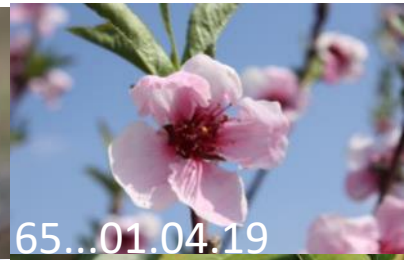


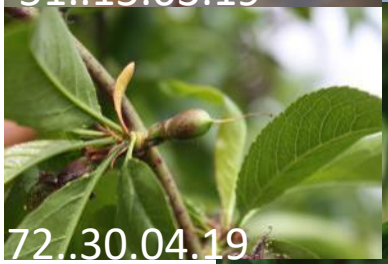


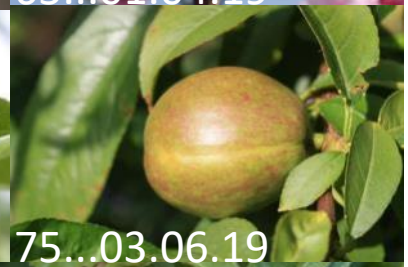


Vertical axe
Honey Royal / GF 677





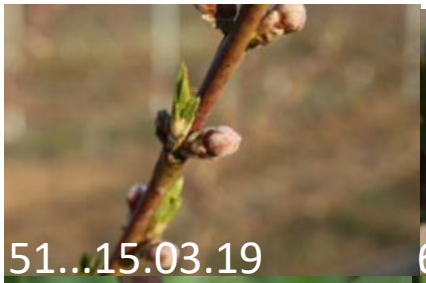


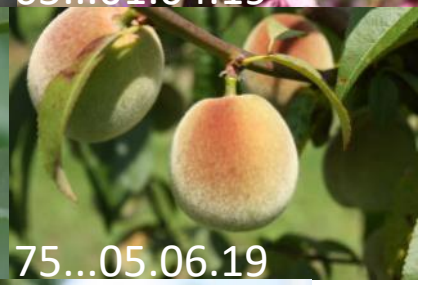


Results and discussions

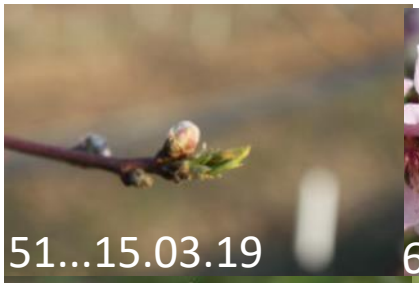
One peach cultivar grafted on different rootstocks on the same canopy

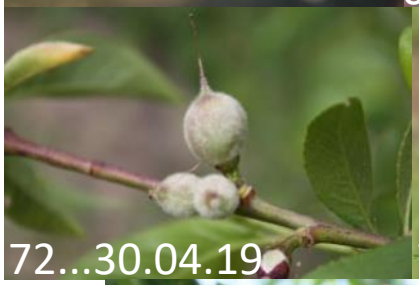
Trident
Royal Summer / Saint Julien A





Trident
Royal Summer / GF 677



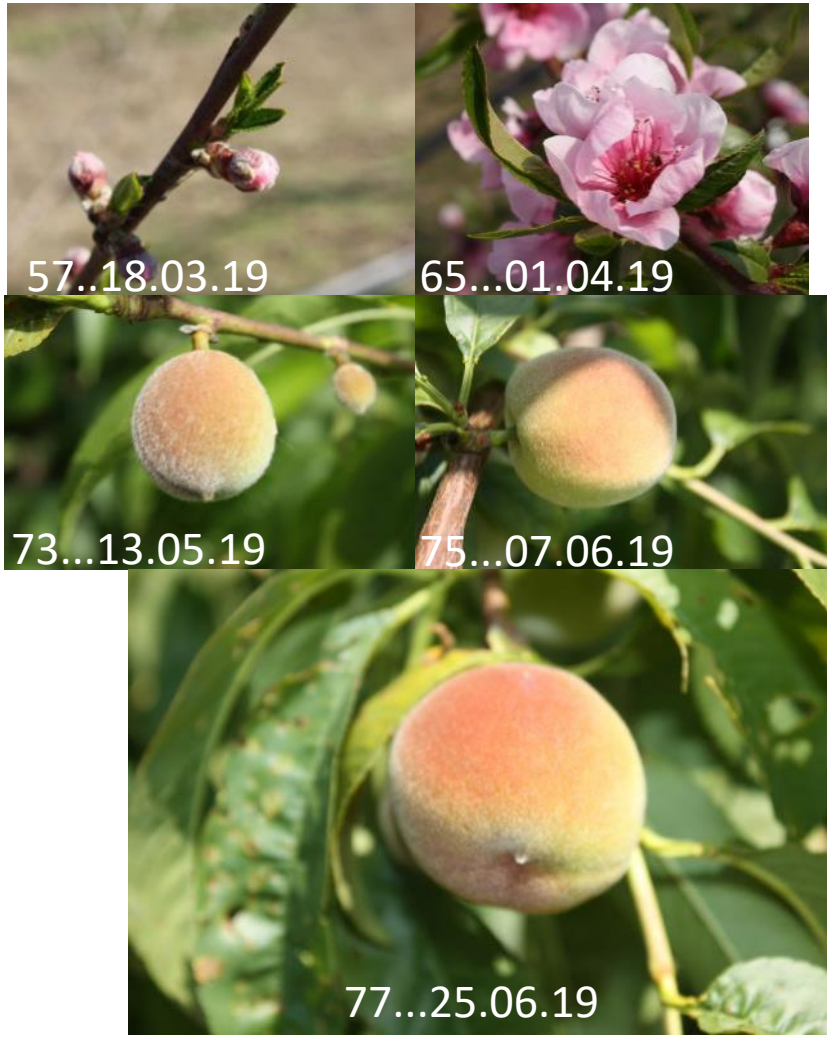


Results and discussions

One peach cultivar grafted on different rootstocks and the same canopy

Vertical axe
Royal Summer/Saint Julien A

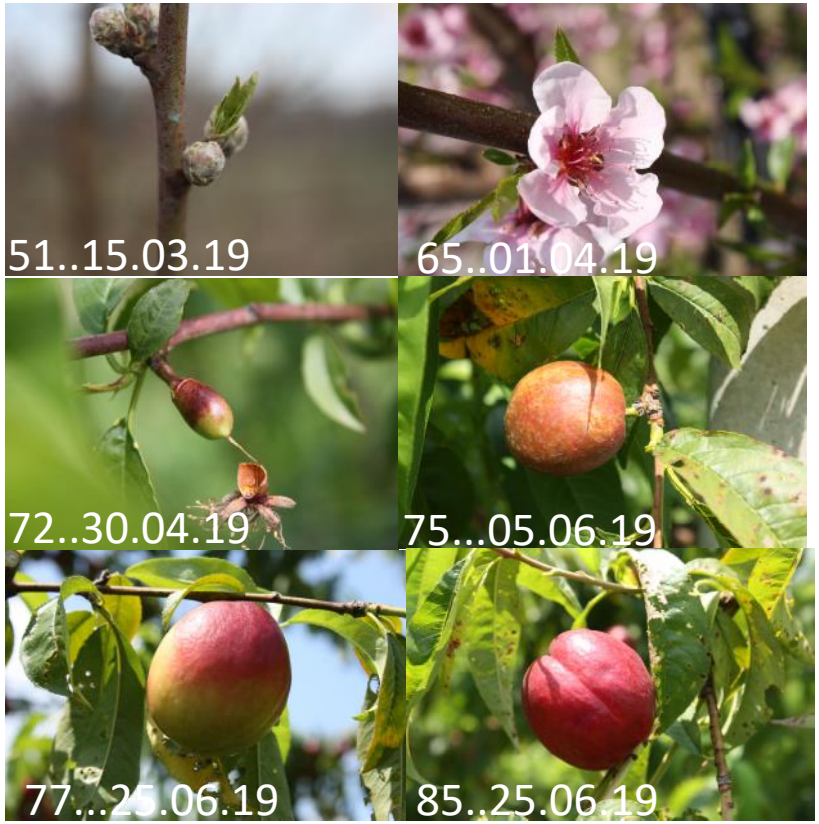
Vertical axe
Royal Summer/GF677



Results and discussions

Two different nectarine cultivars on the same canopy type

Vertical axe
Big Fire / GF 677 (early)



Vertical axe
Nectaross / Saint Julien A (late)

Results and discussions

Two different peach cultivars with the same canopy type

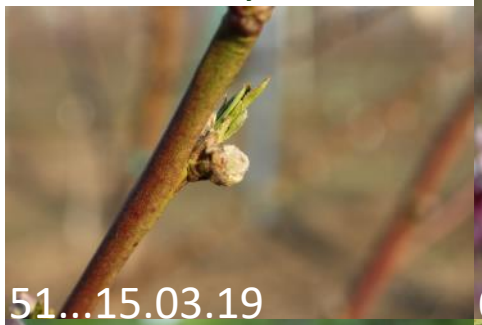
Trident
Sugar Time / Adesoto (early)

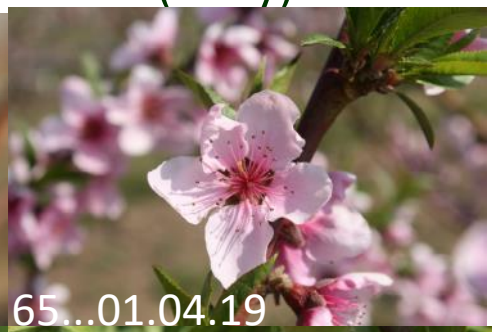
Trident
Lucius / GF677(late)

Results and discussions

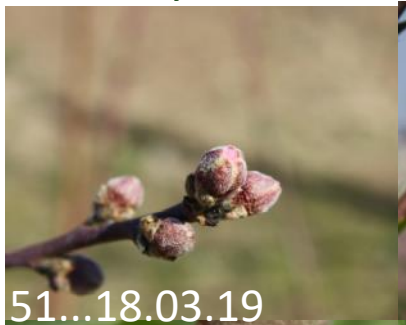
Same peach cultivar on two different canopies

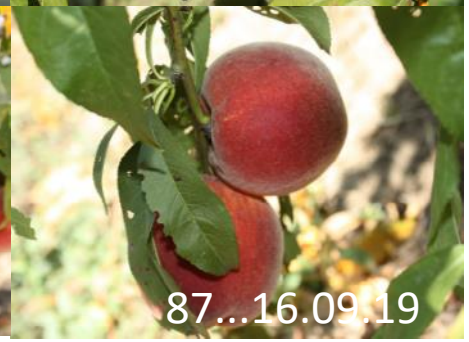
Trident
Royal Jim / Adesoto (early)





Vertical axe
Royal Jim / Adesoto (late)





Results and discussions

BBCH 65

Royal Summer/SJA

2019 = April 01
(85.90°C sum of biological active temperatures

2020 = March 19 (79.80°C) - Trident canopy

2020 = March 21 (84.90°C) - Vertical Axe canopy

Conclusions and recommendations

- The study of phenology is an effective method to identify the advantages and disadvantages of cultivars and to find healthier solutions for protection scheme.

- There are cultivars on different rootstocks, on different canopies that keep their uniformity; (Honey Royal)

- There are cultivars that during fruit growth, the same rhythm is maintained until the period of maturity where some differences appear based on rootstocks or canopies:
  (Royal Jim, Royal Summer)

- **Researches will continue, to see how the rootstocks or canopies influence the earliness/lateness of a cultivar in one stage.**

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Thank you for your attention!